ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Review of Part 15 and	)	ET Docket 01-278
Other Parts of the	)	
Commission's Rules	)	
	)	

To: The Commission

COMMENTS OF THE CHAMBERLAIN GROUP, INC.

The Chamberlain Group, Inc. ("Chamberlain") hereby submits its comments in response to the Notice of Proposed Rulemaking in the above-captioned proceeding regarding Part 15 and other parts of the Commission's rules.[1] Chamberlain opposes the proposal, as set forth in the Notice and promoted by SAVI Technology Inc. ("SAVI"),[2] to permit virtually continuous high-power Radio Frequency Identification ("RFID")[3] tag operation on 433 MHz, the precise frequency used by many residential and commercial door and gate opening systems.

Chamberlain provides access and convenience products for homes and businesses worldwide and is one of the world's largest manufacturers of residential and commercial door operators, access control products and gate operators. Products from these industries reliably serve over 25 million homes and businesses across the United States. Chamberlain is

[1] Review of Part 15 and Other Parts of the Commission's Rules, *Notice of Proposed Rulemaking,* ET Dkt. No. 01-278, FCC No. 01-290, (rel. Oct. 2, 2001) ("Notice").

[2] Petition of SAVI Technology, Inc. to Amend Part 15 to Permit Broader Data Transmission Capabilities, ET Dkt. No. 01-278, FCC No. 01-290, (Nov. 22, 2000) ("*SAVI Petition*").

[3] RFIDs use radio signals to track and identify items and typically consist of a tag installed on the item that needs to be identified, with a corresponding receiver that monitors the tag's movements and location.

specifically concerned about the impact of the proposed rule changes on interference to critical access devices from long-cycle, mobile RFIDs at 433 MHz, the operational frequency for a variety of established industries, including a large number of garage door opening and other security related devices. Chamberlain and others have long used 433 MHz for their products and have been encouraged to do so by longstanding Commission rules that strictly limit the duty cycle of devices likely to interfere and require an "off" period that allows reliable functioning of entrance and access devices operated in close proximity. SAVI has now targeted that precise frequency for deployment of a technology that will use a two-minute duty cycle with a 10 second off-period, a cycle that practically equates to continuous usage. Moreover, RFID systems typically use multiple radiators, mobile but concentrated at a single location when activated, and operate in the very commercial areas where interference to critical access systems is most likely to occur. Access devices, being limited to a maximum of five seconds of operation and a minimum of a 10 second "off" cycle, will not find a window to transmit effectively in the face of near-continuous transmissions of these "super-RFIDs." SAVI provides no significant justification for seeking authority to use the exact frequency on which access devices are operating in reliance on the protection that the Commission's rules have long provided.

Chamberlain generally is not opposed to modification of the Commission's rules to help accommodate innovation; however, the Commission must balance this aspiration so as not to threaten safeguards upon which existing Part 15 devices on the band are predicated. SAVI's proposals, which would dramatically increase the duty cycle on Part 15 devices by over two orders of magnitude, do not warrant disrupting the reliability of so many devices.

The Commission should maintain its commitment to allowing all Part 15 devices to coexist without unreasonable interference. The Commission has noted the importance of

unlicensed spectrum to the public interest, and has said that the introduction of new Part 15 devices and rule changes must be balanced "against the risk of interference to incumbent devices."[4] For the Commission to implement the changes proposed by SAVI in the face of the obvious prospect of interference to a huge number of already deployed operating systems would require the Commission to abandon this principle that has long guided Commission policy for Part 15 devices. SAVI has offered no sufficient justification for such a radical change in policy.

The current rules understandably limit the transmission power and duration to maximize a device's utility while minimizing the potential for interference. The proposed changes would allow new devices to overpower the transmission signals of already deployed devices and render them inoperable or unreliable. If the Commission determines that the further advancement of RFIDs warrants rule changes of this magnitude, it should move "super-RFIDs" to a band that does not causes these interference concerns. At the very least, the Commission should not permit "super-RFIDs" operation at the very location – 433 MHz – where it will do the most damage.

I. SAVI'S PROPOSED RFID OPERATION WILL RENDER A NUMBER OF CRITICAL PART 15 DEVICES INOPERABLE

The Commission has no reasonable basis to alter the balance reflected in the current Section 15.231 safeguards as drastically as SAVI's proposal requires.[5] To accommodate its desired RFID systems, SAVI seeks in this rulemaking to have the Commission significantly

[4] Amendment to Part 15 of the Commission's Rules Regarding Spread Spectrum Devices, *Report and Order*, 15 FCC Rcd 16244, ¶ 14 (2000).

[5] 47 C.F.R. § 15.231. Periodic operation in the band 40.66-40.70 MHz and above 70 MHz (including requirements that "(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released; (2) A transmitter activated automatically shall cease transmission within 5 seconds after activation; and (3) Periodic transmissions at regular predetermined intervals are not permitted").

extend the transmission duration for Part 15 devices that operate above 70 MHz.[6] Furthermore, at SAVI's request, the Commission has proposed to modify existing field strength measurement methodology to combine imprecise and undefined "averaging" techniques with the existing peak standard.

A. SAVI's Super-RFIDs Will Interrupt Commercial and Residential Area Use of Access Devices

Chamberlain has serious concerns about the impact of these proposed modifications to the Part 15 rules on commercial and residential electronic access devices already in operation. In its Petition, SAVI lengthily discussed several RFID applications that reflect operation in commercial areas,[7] while it elsewhere dismissed concerns of Amateur Radio operators because its "RFID systems typically operate in commercial areas."[8] SAVI fails, however, to address the impact of the proposed changes on existing Part 15 devices in commercial areas, such as the sizable number of door and entry control systems in operation today that Chamberlain has manufactured and sold to numerous businesses with warehouses and storage facilities. Nothing in the proposed rules, moreover, would restrict the operation of RFIDs to commercial areas. Indeed, if such systems are as useful as SAVI suggests, it is reasonable to expect that their implementation would be widespread. United Parcel Service, for example, an investor in SAVI, says that it "clearly see[s] a global network, enriched data transfer capabilities, and RFID technology" as key to its primary goals.[9]

It is not difficult to imagine deployment extending to residential areas, and the SAVI petition fails to address the complications that would arise when commercial users are located in

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[6] Notice at ¶ 25.

[7] *SAVI Petition* at 2-3.

[8] Notice at ¶ 26.

or next to residential areas. Trucks and other vehicles equipped with RFIDs would affect such areas as they drive through neighborhoods to deliver products to homes, and, given the mobile nature of RFIDs, the timing and duration of the interference caused would be unpredictable and the particular interference source extremely difficult to detect. Additionally, any commercial users that are located on the borders of residential neighborhoods would create significant risks of interference. Indeed, some likely users of these RFIDs, such as UPS distribution centers, United States Post Offices and others, would be located *in* residential areas. In metropolitan areas, where commercial and residential users are often intermixed, the likelihood of RFID interference only would increase.

Chamberlain understands, moreover, that many companies are already developing 433 MHz "super-RFID" devices designed for residential use that would operate in a similar manner to SAVI's RFIDs. Nothing in the proposed rules would restrict RFID use at 433 MHz to commercial zones, and the Commission has no valid reason to suppose that manufacturers would deploy these devices solely in commercial areas. From SAVI's own description of the potential usefulness of its "super-RFIDs," the Commission necessarily must assume in its analysis that "super RFIDs" on 433 MHz would find widespread applications in residential areas. Even use limited solely to "commercial" purposes may cause interference to entry systems in both residential and commercial applications, and the use of the technology for residential-specific applications only would serve to magnify that problem.

Given the combination of the current rules and those proposed, garage door openers and similar access devices governed by Section 15.231(a) could be subject to disabling interference for a significant duration. RFID devices under Section 15.231(e) and the proposed Section

[9] Comments of United Postal Service, Dkt. No. 01-278, at 1.

15.240 would be allowed to transmit at the same power level (11,000 microvolts with an 110,000 microvolt peak) as devices under Section 15.231(a). Garage door openers and similar devices are limited to a five-second transmission duration, but, under the proposed rules, RFIDs would be allowed 120 seconds, with only 10 seconds in between transmissions. When interference occurs, it would result in virtually continuous disruption of devices operating under 15.231(a). RFIDs operating at 433 MHz would create an incompatibility of extensive duration at a band where many devices currently operate. Thus, as operating RFIDs move through commercial and residential areas, existing Part 15 devices may malfunction for 120 seconds and potentially much longer when multiple "super-RFIDs" are polled serially.[10] Companies that rely on Part 15 devices to access warehouses and storage facilities and homeowners who open their garage doors with Part 15 devices would be denied access without any understanding of the malfunction.

Chamberlain's devices are proven, reliable, and important components of the security, monitoring, and access functions for many businesses. These devices are necessarily robust and designed pursuant to existing rules to tolerate operation of other Part 15 devices. These devices, however, were not designed to tolerate an increase in the transmission duration of over *two orders of magnitude*. The proposed changes will cause these devices to become unreliable and, thus, given their security functionality, worse than inoperable. This is entirely inconsistent with the Commission's policy of a balanced approach between current and future use of unlicensed spectrum.

[10] Based upon the Commission's proposed silent period between transmissions, the unfortunate business that has its entry system jammed for 120 seconds will get a 10 second window to try to remedy the inexplicable problem, and then only if a second tag has not begun operation.

B. The Threat of Local Interference to Access Devices Is Actual, Not Theoretical

These potential interference problems are not imaginary. Based upon Chamberlain's analysis, it has concluded that signal transmissions such as those from contemplated RFIDs would result in, at a minimum, range problems that would frustrate and limit the "remote" functioning distance of a variety of devices. Garage door openers that can only be remotely operated from a very close distance lose the benefits of their security and convenience features.

Chamberlain's many years of experience have helped them to isolate major problems for consumers. Chamberlain estimates that more than 5% to 10% of their customer base experience serious range issues as a result of local interference. This interference causes the most problems at the 390 MHz and 433 MHz bands. Allowing "super-RFIDs" in those bands not only adds to the risk of interrupting critical industrial and residential access systems, but does so with "super-RFIDs" that are moveable. As a result, solutions that might work for stationary interference sources will not work for the "super-RFIDs" interference because the source and duration of interference from these devices will constantly change. The Commission should identify the bands that are most susceptible to interference for existing users and position RFIDs and other disruptive devices in bands that are more resistant to the interference that will be generated.

II. INCOMPATIBLE "SUPER-RFID" OPERATION ELIMINATES THE BALANCE BETWEEN CURRENT USE AND POTENTIAL INNOVATION

Chamberlain urges the Commission to reject the proposals offered by SAVI. These proposed "super-RFIDs" would create interference on a scale far beyond that typically introduced by a new Part 15 device and are incompatible with the Commission's prior policy of seeking a reasonable balance between protecting existing uses and facilitating novel ones. The enormous increase in transmission duration would disrupt important security, monitoring, and access functions performed by existing Part 15 devices.

If the Commission is inclined to allow some form of "super-RFID" operation, then Chamberlain urges the Commission to adopt a version of SAVI's alternative proposal that a new rule section be established specifically for RFID tags which would operate elsewhere in the spectrum. Chamberlain requests that the Commission consider allowing RFID operation at either the 902 – 928 MHz or 2.450 GHz bands. Both of these frequency bands would allow RFID operation with significantly fewer bandwidth, transmission duration and interference complications than are present at the 433 MHz band. There are several alternatives available to the Commission that would accommodate both the existing users and new "super-RFID" entrants. By keeping "super-RFIDs" out of the 400 MHz band, and especially away from 433 MHz, the Commission would contain interference problems associated with such unusual Part 15 operation.

CONCLUSION

SAVI's Petition and proposed alteration to existing Commission rules would result in harmful interference to existing Part 15 devices. For the forgoing reasons, the Commission should refrain from weakening existing regulations and disturbing the balance between current and future use of unlicensed spectrum. That action would protect important security and access devices in current use and, in doing so, will serve the public interest.

Respectfully Submitted,

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Attachment A

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